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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,848	07/20/2000	Ronald E. Pelrine	SRI1P022/US-4076-2	2968

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EXAMINER

ADDISON, KAREN B

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 05/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/619,848

Applicant(s)

PELRINE ET AL.

Examiner

Karen B Addison

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ravinet(4,401,911) in view of Yamamuro(3,832,580).

Ravinet disclose the structural limitation of the generator in figures 9-14: a electromechanical transducer, two electrodes (18 and 19) that are compliant [that apply a voltage that produces a pressure in the polymer less than elastic restoring stress resulting from the stretch by means of electrical current 5 and wherein electrical energy is remove by least two electrodes during contraction], a PVDF polymer (7) [arrange in a manner which causes a change in response to a deflection (13) applied to a first portion(A) of the polymer, wherein a second portion(B) of the polymer is elastically pre-strained(fig.11) before deflection when the polymer is applied to a first orthogonal direction to enhance the change in the electric field from a deflection in the second orthogonal direction] , a generator (5) , a stiff member (20 and 23) [coupled to at least one transducer wherein the at least one stiff member substantially preventing displacement in the second direction] and a frame. Ravinet also disclose in 14 a frame (27) attached to a second portion of the polymer (2), the frame comprising at least one

aperture wherein the first portion of the polymer (A) is arranged in a manner which causes a change in the electric field in response to a deflection applied to the third portion of the polymer (B). It is inherent that the generator is capable of converting mechanical energy to electrical and vice versa. Ravinet does not disclose the removal of at least two electrodes during the contraction.

Yamamuro teaches a transducer in fig.1-14 comprising a polymer (1), electrodes (2) on both sides on the polymer and alternating voltage source (3). Yamamuro also teaches in fig.2 removing at least 2 electrodes during the contraction of the transducer for the purpose of removing the piezoelectric effects. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transducer of Ravinet with the teaching Yamamuro for the purpose of converting electrical energy in to mechanical energy vise versa.

It also is a matter of design choice to choice a polymer comprising a material selected from a group of silicone elastomer, acrylic elastomer, polyurethane copolymer comprising PVDF with the characteristic of elastic modulus below 100MPa, a maximum linear strain of at least 50 percent, a pre-strained factor in the range of about 1.5 times to 50 times an original area prior to pre-strain, a polymer which can support a change in electric field at about 440 Mega Volts/meter, a polymer that generates a least about 0.15 joules per gram for the polymer and polymer that has an aspect ratio of at least 4:1.

Response to Arguments

3. Applicant's arguments with respect to claim 1-36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen B Addison whose telephone number is 703-306-5855. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 703-308-1317. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3431 for regular communications and 703-305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

KBA
May 4, 2002


NESTOR RAMIREZ
SUPERVISORY PATENT EXAMINER
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